

What is claimed is:.

1. Nucleic acid encoding an APRIL ligand, said ligand comprising a polypeptide of at least about 102 amino acids.
- 5 2. Nucleic acid of claim 1 encoding SEQ ID No:2.
3. Nucleic acid encoding an APRIL ligand or a fragment thereof, wherein said ligand comprises an amino acid sequence found in amino acids 1 to 55 of SEQ ID NO:2.
- 10 4. Nucleic acid encoding an APRIL ligand or a fragment thereof, wherein said ligand comprises an amino acid sequence found in amino acids 157 to 250 of SEQ ID NO:2.
5. Nucleic acid of claims 1-4 encoding an amino acid substitution analog of SEQ ID No:2.
- 15 6. Nucleic acid of claim 5 wherein said substitution analog, when aligned with SEQ ID No:2, shares at least 40% sequence similarity therewith, further wherein said substitution analog shares at least 80% of aligned cysteine residues with said APRIL ligand.
7. Nucleic acid of claim 5 wherein said substitution analog, when aligned with SEQ ID No:2, shares at least 80% sequence similarity therewith.
- 20 8. Nucleic acid having a nucleotide sequence comprising
 - (a) SEQ ID NO:1; or
 - (b) a substitution analog of SEQ ID NO:1; or
 - (c) an alteration analog of SEQ ID NO:1; or
 - (d) a deletion analog of SEQ ID NO:1.
- 25 9. A vector having the nucleic acid of claim 1, 2, 3, 4, or 8, present as an insert therein, said vector optionally comprising an expression control sequence operably linked to said insert.

10. A host cell comprising the vector of claim 9.
11. A method for producing substantially pure APRIL comprising the steps of:
culturing the host cells of claim 10.
12. An APRIL ligand polypeptide comprising at least about 102 amino acids.
- 5 13. An APRIL ligand polypeptide comprising an amino acid sequence found in
amino acids 1 to 55 of SEQ ID NO:2 or a fragment thereof.
14. An APRIL ligand polypeptide comprising an amino acid sequence found in
amino acids 157 to 250 of SEQ ID NO:2 or a fragment thereof.
15. An APRIL ligand selected from:
- 10 (a) SEQ ID No:2; or
- (b) an amino acid substitution analog of SEQ ID No:2.
16. A soluble APRIL ligand polypeptide of claims 12-15.
17. A pharmaceutical composition comprising a therapeutically effective amount of
an APRIL ligand polypeptide of claims 12-15 and a pharmaceutically
15 acceptable carrier.
19. An antibody that binds specifically to an APRIL ligand polypeptide of claim 12,
13, 14, 15 or 16.
20. An antibody that blocks binding of an APRIL ligand polypeptide to an APRIL
receptor polypeptide.
- 20 21. An antibody of claim 20 that binds specifically to an APRIL polypeptide.
22. A method for preventing or reducing the severity of an autoimmune disease
comprising the step of administering a therapeutically effective amount of a
pharmaceutical composition according to claim 17.
23. A method for preventing or reducing the severity of an immune response to a
25 tissue graft comprising the step of administering a therapeutically effective
amount of a pharmaceutical composition according to claim 17.

24. A method for stimulating the immune system comprising administering the composition of claim 17.
25. A method for suppressing the immune system comprising administering an effective amount of the pharmaceutical composition according to claim 17.
- 5 26. A method for treating cancer comprising administering a therapeutically effective amount of the pharmaceutical composition according to claim 17.
27. A method for identifying a receptor for APRIL comprising:
- a. providing APRIL or a fragment thereof,
 - b. labeling said APRIL or fragment thereof with a detectable label;
 - 10 c. screening a composition to detect receptors which bind to the detectably labeled of step b.
28. A method of expressing APRIL in a mammalian cell comprising:
- a. introducing a gene encoding APRIL into a cell;
 - 15 b. allowing said cell to live under ~~conditions~~ such that said gene is expressed in said mammal.
29. A method of treating a disorder related to APRIL in a mammal
- a. introducing into a cell a therapeutically effective amount of a vector comprising a gene encoding APRIL; and
 - b. expressing said gene in said mammalian cell.
- 20 30. The method of claim 29 wherein the mammal is a human.
31. The method of claim 29 wherein said vector is a virus.
32. A method of inducing cell death comprising the administration of an agent capable of interfering with the binding of APRIL to a receptor.
33. The method of claim 32 further comprising the administration of interferon-K.

34. A method of treating, suppressing, activating or altering an immune response involving a signaling pathway between APRIL and its receptor, said method comprising the step of administering an effective amount of a blocking agent capable of interfering with the association between APRIL and its receptor.
- 5 35. The method of claim 34 wherein said immune response involves human carcinoma cells.
36. A method of treating, suppressing or altering the progression of a cancer comprising administering to a patient an effective amount of a blocking agent between April and its receptor capable of interfering with the association.
- 10 37. The method of claim 36, wherein the blocking agent is a modified inhibitory form of APRIL, or anti-APRIL antibodies or biologically active fragments thereof.
38. The method of Claim 37 wherein the blocking agent is an anti-APRIL receptor antibody.
- 15 39. The method of Claim 36 wherein the blocking agent is administered to a patient in combination with at least one chemotherapeutic agent.
40. The method of claim 39 further comprising the step of administering radiation therapy to said patient.
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- 20 41. A method of suppressing growth of a tumor cell that expresses APRIL, comprising the step of contacting said cell with an effective amount of an APRIL ligand polypeptide of claims 12-15 or an antibody of claims 19-21.
42. A method of suppressing growth of a tumor cell that expresses an APRIL receptor polypeptide, comprising the step of contacting said cell with an effective amount of a soluble APRIL ligand polypeptide of claims 12-15 or an antibody of claims 19-21 to said subject.
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